The invention relates to a method for producing a biocompatible crosslinked gel consisting in crosslinking a determined quantity of at least one type of liquid biocompatible polymer by adding a quantity of crosslinking agent, in carrying out a crosslinking reaction, in adding an additional quantity of liquid polymer whose molecular mass is greater than 500,000 Da, in solving the reaction mixture in such a way that the total concentration of the liquid polymer is reduced, in crosslinking and in stopping the crosslinking reaction by removing the crosslinking agent. The inventive gel and the use thereof are also disclosed